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09/155,241	09/22/1998	ANDRE JOUANNEAU		8350

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EXAMINER
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AWAI, ALEXANDRA F

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/155,241

Applicant(s)

JOUANNEAU, ANDRE

Examiner

Alexandra Awai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 13-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 39-74 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-74 are currently pending, and claims 13-38 have been withdrawn. Claims 1-12 and 39-74 have been examined.

#### *Response to Arguments*

2. Applicant's arguments filed 8/24/2005 have been fully considered but they are not persuasive. Applicant has not overcome the objections, rejections or evidence within the literature presented by the previous examiner with regard to the lack of demonstrated possession of an operative embodiment, and the lack of adequate written description for enablement. The rejections and objections of the prior Office Action dated 8/24/2004 are incorporated herein by reference inasmuch as they apply to the currently amended claims, and will be restated or expounded in the sections to follow. Specific responses to Applicant's arguments pertaining to the previous examiner's prior art rejections are incorporated into the current prior art rejections.

With regard to the traversed 112 first paragraph rejection of claims 1-12 and 39-74, although the specification recites a current density of at least  $100 \text{ mA/cm}^2$ , the specification is not enabling for the scope communicated by the claims, but rather only discloses the use of current densities on the order of  $100 \text{ mA/cm}^2$ , and not for current densities *ad infinitum*. The term "at least  $100 \text{ mA/cm}^2$ " is unduly vague, thereby preventing a skilled artisan from being reasonable apprised of the scope of the invention.

Although the original disclosure *endeavors* to teach a theory for a solid plasma stabilized in part through vibration, it does not technically succeed in the teaching. The specification

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merely states that certain phenomena are occurring due to the application of various forces according to a range of ambiguous chemical and electromagnetic parameters. The phenomena disclosed (e.g. spherical crowns, elementary energy cells) are not explained in terms of the established physics. For instance, it is not clear how or in what manner vibrations (i.e. electric field pulsation) provide *to any degree* for the continued separation of nucleons and electrons dissolved in metal. Such is contrary to the current understanding of the nature of matter and particle interactions. Therefore, thorough explanation, as well as documented evidence, are required for formal acceptance of the aforementioned theory.

Furthermore, “solid plasma” and “spherical crown” are misnomers that are incompatible with the accepted terminology in the relevant arts. Applicant’s usage of the term “solid plasma” implies that there may be a variety of plasmas that behave as different phases of matter. A plasma, in the nuclear art, is *defined* by its behavior, and therefore the term plasma must be applied to at least partially ionized systems of gases that are large enough to behave collectively. The hydrogenation observed by Hoare *et al* is the formation of a solution wherein the cathode material is the solvent and the hydrogen isotopes are the solutes. What the applicant has described is conceptually equivalent to a “solid liquid” wherein dissolved particles (e.g. NaCl) are defined as a solid even after they are suspended in liquid (e.g. H<sub>2</sub>O). The “spherical crowns” are described as mini-Tokamaks, and are clearly toroidal *not* spherical. Given that there already exist accurate and descriptive terms in the art for the features disclosed by the applicant, the adulteration of other, well-defined terms within the art serves only to misrepresent the substance of the invention.

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With regard to the traversed 112 first paragraph objection to the specification, the examiner respectfully submits that simply stating that a certain proton concentration (pH) is preferred does not equate to enablement. Note that Applicant has stated that both basic and acidic solutions *may* be used as possible sources of hydrogen in the Specification. It is clear that enablement under section 112 is *not* satisfied because a skilled artisan *would* be required to conduct undue and unreasonable experimentation. This is due to the total lack of quantitative results from experimentation with the alleged operative embodiment by the applicant, as well as the assertions directed to unsubstantiated phenomena – such as the concept of protons being stored as a plasma. Note that although the applicant has provided graphs illustrating the performance of various components of the embodiment, the results of plasma use (i.e. heat energy measured or converted to electricity) and the conditions under which those results were achieved, are conspicuously absent from the disclosure.

With regard to the traversed 101 rejection of claims 1-12 and 39-74, although the previous examiner did discuss the issue of the pH of the ionic solution, it is not the *only* feature/parameter relevant to the question of operability. On page 11 of the 8/24/2004 Office Action, the previous examiner restates that the applicant has not presented any evidence to support the theory that a species of plasma is formed within the cathode, as opposed to the more credible scenario wherein a metal hydride is formed. Given that the applicant has not shown that a plasma is formed in the first place, it is clear that the applicant has not provided a sufficiently detailed description so as to enable an artisan to make and use the invention without undue experimentation and study. The invention in question is an apparatus for producing and using plasma, the disclosed use being the production of clean energy from either nuclear fusion or

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chemical reactions. Applicant has presented a theory – albeit one that relies on phenomena that are precluded in the current understanding of nuclear physics and quantum chemistry – and applications for said theory. Given that the applications are based upon an unproved theory, precisely detailed instructions for the constructions of any embodiment, much less an *operative* embodiment, are required. The drawings and the specification's disclosure of parameters do not constitute precisely detailed instructions.

### *Specification*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately teach how to make and/or use the invention, i.e. failing to provide an enabling disclosure, as set forth in the 8/24/2004 Office Action and sections 2 and 5 of this Office Action.

5. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms and assertions that are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of seemingly incomplete, unclear, verbose or inexact terms include the following:

- That the particles absorbed into the cathode constitute a plasma, or "solid plasma". It is therefore unclear whether or not a "plasma itself is produced" (p. 2, line 11).

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- How a particle accelerator may be applied to efficiently power a space rocket (pp. 2 and 35).
- It appears misleading to state that nucleons may approach one another *without* electric repulsion, rather than *despite* it (p. 2).
- The terms “too cathodic” (p. 5) and “core of the electrode” (p. 5) - inexact.
- Lines 26-29 of page 6 regarding  $V_{\text{free}}$  and  $V_a$  - verbose and unclear.
- The contention at the top of page 8, that the metals’ *affinity* for hydrogen is what modifies the structure of the metal, especially in light of the fact that hydrogen affinity is largely determined by electron shell structure.
- The meaning of “the distance of Van der Waals” (p. 8, line 20), as well as the statement that elementary cells are large enough for hydrogen atoms to not interact (p. 8, line 29). Typically hydrogen atoms at the densities disclosed by the applicant *will* interact unless their temperature approaches absolute zero.
- The statement, “it is impossible to produce hydrogen molecules with a slope ( $b=0$ )” (p. 10, line 15) appears contradictory since  $b = 0$  means that there is no slope.
- How the differing transmission speeds of protons and electrons accounts to any degree for their remaining in the electrode under plasma form (p. 10, lines 28+).
- How vibrations forbid combination of hydrogen isotopes with electrons (p. 11), as moving particles are more energetic than unperturbed particles, predicting an *increase* in particle interactions.

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- That “by using a constant current-density to which are added periodical impulses (Figure 7), it becomes possible to force the entry of similar protonic waves” (p. 16, lines 3+).

What is meant by “entry” and “similar”?

- That the softening of a metal may increase the level of vibrations (p. 21). Harder, more crystalline structures allow for greater penetration of waves, and the term “level” is ambiguous.
- “A cavity ... allows to remove the hydrogen ...” (p. 22, lines 27+), one example of confusing syntax.
- “The rate of standing waves ... is not 100%” (p. 27, lines 38-39), as 100% is not an obvious unit of rate.
- That tritium storage is a practical application for the invention, given its half-life (p. 34)
- That a dipole moment may “react so violently” (p. 35, line 17).
- The listings of nuclear reactions (pp. 37-41), wherein it is not made clear that the energy produced in the reaction is in the form of kinetic energy of the particles or electromagnetic waves. Additionally, the listings imply that all of the reactions are reasonably likely given appropriate circumstances. However, note that certain reactions result in particles that are extremely unstable (e.g.  $^5\text{He}$ ), and will not contribute to energy in an operative embodiment.

Furthermore, there are numerous instances of subject-verb disagreement within the specification that contribute to its lack of clarity. The examples listed in this section are not to be construed as an exhaustive listing of the unclear, inexact and verbose terms within the current specification.



***Claim Rejections - 35 USC § 112***

6. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, as set forth in the Office Action dated 8/24/2004, and sections 2 and 5 of this Office Action.

7. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for current densities on the order of  $100 \text{ mA/cm}^2$ , does not reasonably provide enablement for all current densities larger than  $100 \text{ mA/cm}^2$ , as encompassed by the term "at least". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The method claims in particular have been amended to recite that the particles themselves vibrate the solid, which is contrary to the disclosure and therefore indistinct. The features of the invention (see claims 1 and 2 in particular) are not defined in clear terms, since they indicate the result to be achieved rather than the physical structure or actions essential for obtaining the result. For example, a solid is provided whose only feature is a lattice

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“of such a nature that [it] will allow the creation of stable plasma”, but since the qualities of the stable plasma are not stated, the result to be achieved is itself ambiguous.

Claims 1-3, 7, 35 and 37 provide for the use of plasma, but, since the claims do not set forth any subsequent steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “stable plasma” used in the claims to mean “dissociated ions of high density”, while the accepted meaning of “stable plasma” is a confined and at least partially ionized gas of low density. The term is indefinite because the specification does not clearly redefine the term, but instead implies that there may exist plasmas that are of high density. Note also that the noun *periodic* is preferable to *periodical* (claims 41, 44, 47, 50, 53, etc.), as the latter is more commonly used in unrelated contexts.

### ***Claim Rejections - 35 USC § 101***

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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11. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by a credible asserted utility, as set forth in the Office Action dated 8/24/2004, and sections 2 and 5 of this Office Action.

Claims 1-12 and 39-74 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by a credible asserted utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

12. Claims 1-3, 7, 35 and 37 are also rejected under 35 U.S.C. 101 because the claimed recitation of a use (see section 9 of this Office Action), without setting forth any subsequent steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 102(b) as being anticipated by Cedzynska *et al.*

Cedzynska *et al* teaches an electrolytic system and method for loading a solid with hydrogen isotopes with the source of ionized hydrogen being a solution substantially as claimed in the current application. Note that the claims only broadly recite the features of the invention (i.e. “media with particles” and “the group consisting of an ionic solution having a pH less than 1.0, plasma gas and a gas atmosphere”), allowing the reference to read upon them. Regarding Applicant’s arguments on page 31 of the 8/24/2005 Remarks, it is not at all clear that the charge-discharge cycles would not allow the loading of sufficient deuterium atoms for storage or use. Given that the reference claims the creation of tritium, it appears that the loading of deuterium was sufficient. Furthermore, if the Cedzynska *et al* device is capable of achieving its claimed object, it is also capable of achieving the particle densities and solid material resonance frequencies specified by the applicant.

15. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 102(b) as being anticipated by any of Silvera *et al*, Hemmes *et al* or Myers *et al* as set forth in section 10 of the 8/24/2004 Office Action.

Note that plasmas and atmospheres are by definition gaseous. Moreover, ionic solutions may also be gaseous. In view of the fact that the references do not disclose that the hydrogen isotopes are *not* in “plasma” form, but rather use different terms to describe equivalent phenomena, the prior art reads upon the current claims with regard to the entry of hydrogen isotopes into the lattice of a solid.

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pons *et al* as argued in previous correspondence, and further in view of either Doke *et al* or Hoare *et al*.

Pons *et al* uses a basic electrolyte solution and does not utilize an applied current. However, it would have been *prima facie* obvious to apply current and use a low pH electrolyte as taught by Hoare *et al* in order to facilitate entry due to the well-known electrochemical properties of the materials at issue. As stated in the 8/24/2004 Office Action, Doke *et al* also teaches the use of a vibrating electrode. In response to applicant's argument that plasma is not formed in the Doke *et al* device, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference (i.e. features other than the utilization of a vibrating electrode); nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The teachings of the references show that the combinations of features disclosed in the claims would have been obvious to one skilled in the art. Furthermore, the applicant has not even established that hydrogen isotopes are

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not bound to the metallic atoms in the *current* invention. Furthermore, note that Applicant does not disclose details of the use of the partially ionized hydrogen isotopes within the claims.

18. Claims 1-12 and 39-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Bellanger *et al* or Schulten *et al*, and further in view of Cedzynska *et al* as set forth in the 8/24/2004 Office Action. In response to applicant's argument that plasma is not formed in the devices of the references, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The teachings of the references show that the combinations of features disclosed in the claims would have been obvious to one skilled in the art. Furthermore, the applicant has not even established that hydrogen isotopes are not bound to the metallic atoms in the *current* invention.

### ***Conclusion***

19. In response to the request that the Examiner contact the representative of the applicant, the Examiner respectfully declines due to the volume of unresolved issues delineated in this Office Action.


20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Awai whose telephone number is (517) 272-3079. The examiner can normally be reached on 8:30-5:00 Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AA  
October 7, 2005

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER